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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/619,835	07/16/2003	Yeon-Cheol Lee	053933-5050	7206

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MORGAN LEWIS & BOCKIUS LLP
1111 PENNSYLVANIA AVENUE NW
WASHINGTON, DC 20004

EXAMINER
YODER III, CHRISS S

ART UNIT	PAPER NUMBER
2622	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/05/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

PTOL-90A (Rev. 10/06)

	Application No.	Applicant(s)
Office Action Summary	10/619,835	LEE ET AL.
	Examiner	Art Unit
	Chriss S. Yoder, III	2622

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 July 2003*.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-13* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3,4,7,8,10 and 11* is/are rejected.

7)☒ Claim(s) *2,5,6,9,12 and 13* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *16 July 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☒ All b)☐ Some * c)☐ None of:

      1.☒ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☒ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

DETAILED ACTION

Specification

The disclosure is objected to because of the following informalities:

The disclosure is objected to because it contains the limitation that "This

application claims to benefit of Korean Patent Application No. *Year-Number*, filed

Month day, Year, in the Korean Intellectual Property Office, the disclosure of

which is incorporated herein by reference" on page 1, lines 6-9. This should be

changed to read, "This application claims to benefit of Korean Patent Application

No. *2003-40753*, filed *June 23, 2003*, in the Korean Intellectual Property Office,

the disclosure of which is incorporated herein by reference"

Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35

U.S.C. 102 that form the basis for the rejections under this section made in this

Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1.   Claims 1, 7 and 8 are rejected under 35 U.S.C. 102(b) as being

anticipated by D'Alfonso et al. (US Patent # 5,896,166).

2.   In regard to claim 1, note D'Alfonso discloses an interface apparatus in an

image processing system, comprising an image sensor sensing an image (figure

2: 32), an image processor processing the sensed image to output image data

(figure 2: 18), and a sensor interface coupled between the image sensor and the

image processor (column 5, lines 1-5), the sensor interface comprising, a sensor

type register storing information about the image sensor (column 5, line 25 –

column 6, line 31 and figure 2: 34), a micom storing the information in the sensor

type register to control the image sensor (column 5, lines 1-5 and figure 2: 14

and 34), and a sensor signal processor receiving signals corresponding to the

sensed image from the image sensor (column 3, lines 26-31 and figure 2: 36 and

16), converting the signals into modified signals, which the image processor

processes to output the image data, according to the information stored in the

sensor type register (column 3, lines 26-31 and figure 2: 36 and 16), and

transmitting the modified signals to the image processor (column 3, lines 26-33

and figure 2: 18).

3.   In regard to claim 7, note D'Alfonso discloses that the micom

communicates with the image sensor using a general purpose input/output signal

transmitted between the micom and the image sensor (column 4, lines 10-12).

4.   In regard to claim 8, this is a method claim, corresponding to the

apparatus in claim 1. Therefore, claim 8 has been analyzed and rejected as

previously discussed with respect claim 1.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for

all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described
as set forth in section 102 of this title, if the differences between the subject matter sought to

be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5.   Claims 3-4 and 10-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over D'Alfonso et al. (US Patent # 5,896,166).

6.   In regard to claim 3, note D'Alfonso discloses that the information stored in the sensor type register comprises image signal processing (ISP) mode information and pattern signal information of the image processor (column 5, lines 41-51). Therefore, it can be seen that D'Alfonso fails to disclose that the sensor type register stores information about the polarity information of the vertical synchronization signal, the horizontal synchronization signal, and the pixel clock signal, horizontal size information of the sensed image, and vertical size information of the sensed image. However, D'Alfonso does disclose that one of ordinary skill in the art would recognize that the memory device may store more information that explicitly disclosed (column 6, lines 29-31).

Official Notice is taken that the concepts and advantages of storing information about the polarity information of the vertical synchronization signal, the horizontal synchronization signal, and the pixel clock signal, horizontal size information of the sensed image, and vertical size information of the sensed image are notoriously well known and expected in the art. Therefore, it would have been obvious to one of ordinary skill in the art to modify the D'Alfonso device to include the storage of information about the polarity information of the vertical synchronization signal, the horizontal synchronization signal, and the pixel clock signal, horizontal size information of the sensed image, and vertical

size information of the sensed image in order to provide a more comprehensive record of parameters so as to better compensate/correct the image data.

7.   In regard to claim 4, note D'Alfonso discloses that the sensor type register comprises a sensor signal register (column 5, lines 41-51 sensor signal data is stored in memory). Therefore, it can be seen that D'Alfonso fails to disclose that the sensor type register comprises a horizontal size register and a vertical size register. However, D'Alfonso does disclose that one of ordinary skill in the art would recognize that the memory device may store more information that explicitly disclosed (column 6, lines 29-31).

Official Notice is taken that the concepts and advantages of storing information about the horizontal size and the vertical size are notoriously well known and expected in the art. Therefore, it would have been obvious to one of ordinary skill in the art to modify the D'Alfonso device to include a horizontal size register and a vertical size register in order to provide a more comprehensive record of parameters so as to better compensate/correct the image data.

8.   In regard to claims 10-11, these are method claims, corresponding to the apparatus in claims 3-4, respectively. Therefore, claims 10-11 have been analyzed and rejected as previously discussed with respect claims 3-4.

Allowable Subject Matter

Claims 2, 5-6, 9, and 12-13 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

9.   As for claim 2, the prior art does not teach or fairly suggest the use of an interface apparatus in an image processing system, having a sensor interface coupled between an image sensor and an image processor, the sensor interface comprising, a micom storing information about the sensor in a sensor type register to control the image sensor, and a sensor signal processor receiving a vertical synchronization signal, a horizontal synchronization signal, a pixel clock signal, and a pixel data signal corresponding to the sensed image from the image sensor, and converting the vertical synchronization signal, horizontal synchronization signal, pixel clock signal, and pixel data signals into modified signals according to the information stored in the sensor type register, and transmitting the modified signals to the image processor.

10.   As for claim 5, the prior art does not teach or fairly suggest the use of an interface apparatus in an image processing system, having a sensor interface coupled between an image sensor and an image processor, the sensor interface comprising, a micom storing information about the sensor, including polarity information of the vertical synchronization signal, the horizontal synchronization signal, and the pixel clock signal, image signal processing mode information of the image processor, horizontal size information of the sensed image, and vertical size information of the sensed image, in a sensor type register to control the image sensor, and a sensor signal processor receiving a vertical synchronization signal, a horizontal synchronization signal, a pixel clock signal,

and a pixel data signal corresponding to the sensed image from the image sensor, and converting the vertical synchronization signal, horizontal synchronization signal, pixel clock signal, and pixel data signals into modified signals according to the information stored in the sensor type register, and transmitting the modified signals to the image processor.

11.   As for claim 6, the prior art does not teach or fairly suggest the use of an interface apparatus in an image processing system, having a sensor interface coupled between an image sensor and an image processor, the sensor interface comprising, a micom storing information about the sensor, including polarity information of the vertical synchronization signal, the horizontal synchronization signal, and the pixel clock signal, image signal processing mode information of the image processor, horizontal size information of the sensed image, and vertical size information of the sensed image, in a sensor type register to control the image sensor, and a sensor signal processor receiving a vertical synchronization signal, a horizontal synchronization signal, a pixel clock signal, and a pixel data signal corresponding to the sensed image from the image sensor, and converting the vertical synchronization signal, horizontal synchronization signal, pixel clock signal, and pixel data signals into modified signals, via multiplexers, according to the information stored in the sensor type register, and transmitting the modified signals to the image processor.

12.   As for claim 9, the prior art does not teach or fairly suggest the use of an interface method of interfacing an image sensor and an image processor in an image processing system, the interface method comprising storing information

about the image sensor in a sensor type register, receiving a vertical synchronization signal, a horizontal synchronization signal, a pixel clock signal, and pixel data from the image sensor, converting the vertical synchronization signal, horizontal synchronization signal, pixel clock signal, and pixel data into image data according to the information stored in the sensor type register, and transmitting the converted image data to the image processor.

13.   As for claim 12, the prior art does not teach or fairly suggest the use of an interface method of interfacing an image sensor and an image processor in an image processing system, the interface method comprising storing information, including polarity information of the vertical synchronization signal, the horizontal synchronization signal, and the pixel clock signal, image signal processing (ISP) mode information and pattern signal information of the image processor, horizontal size information of the sensed image, and vertical size information of the sensed image, about the image sensor in a sensor type register, receiving a vertical synchronization signal, a horizontal synchronization signal, a pixel clock signal, and pixel data from the image sensor, converting the vertical synchronization signal, horizontal synchronization signal, pixel clock signal, and pixel data into image data according to the information stored in the sensor type register, and transmitting the converted image data to the image processor.

14.   As for claim 13, the prior art does not teach or fairly suggest the use of an interface method of interfacing an image sensor and an image processor in an image processing system, the interface method comprising storing information, including polarity information of the vertical synchronization signal, the horizontal

synchronization signal, and the pixel clock signal, image signal processing mode

information and pattern signal information of the image processor, horizontal size

information of the sensed image, and vertical size information of the sensed

image, about the image sensor in a sensor type register, receiving a vertical

synchronization signal, a horizontal synchronization signal, a pixel clock signal,

and pixel data from the image sensor, and converting, by either inverting or non-

inverting the vertical synchronization signal, horizontal synchronization signal,

and pixel clock signal according to the information stored in the sensor type

register, and transmitting the converted image data to the image processor.

Conclusion

The prior art made of record and not relied upon is considered pertinent to

applicant's disclosure.

US006873366B2: note the use of timing generation for an imaging device.

US 20040119844A1: note the use of interchangeable sensors.

US006046769A: note the use of interchangeable sensors.

US006593963B1: note the use of programmable control of operational

signals in a digital camera.

US006980241B2: note the use of interchangeable sensors.

US007042499B1: note the use of interchangeable sensors.

US006313868B1: note the use of interchangeable sensors.

US006573931B1: note the use of interchangeable sensors.

US005040068: note the use of interchangeable sensors.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chriss S. Yoder, III whose telephone number is (571) 272-7323. The examiner can normally be reached on M-F: 8 - 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vivek Srivastava can be reached on (571) 272-7304. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

CSY
March 27, 2007

LIN YE
PRIMARY PATENT EXAMINER